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Framework Legal Instrument on Biological Diversity:
An Analysis of Possible Financial Mechanisms

A Study Prepared for the United Nations Environment Programme */

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I. INTRODUCTION

1. In the 18 years that have elapsed since the Stockholm Conference there has been growing concern, if not anxiety, in both developed and developing countries about the proper management of environmental quality and natural resources. The problems that arise are not new. What is new is their scope and the scale of their impact. Rapidly increasing population, ill-considered and destructive development strategies without consideration of the natural resource base, and the use of inappropriate and potentially dangerous technologies have all contributed to the emergence of a new agenda of environmental concerns. The new agenda is centrally concerned with the life-supporting systems of the earth's biosphere. The challenges that we face must be met through a broad spectrum of policy analysis and action which is both politically acceptable and economically efficient.

2. One of the most important challenges to be met concerns the extinction of species. The main cause is the loss of habitat of these species such as wetlands, estuaries, lakes, highlands, and temperate and tropical forests.

3. Most of the species currently in danger are unknown to science. Mankind is thus dealing with a major area of risk and uncertainty. It is necessary to proceed with caution. In reality, the current rate of extinction of species is unprecedented. It has been noted that it will take millions of years to correct the loss of genetic and species diversity engendered by current destruction of their natural habitats.

4. In the consideration of the current rate and extent of this destruction, a number of inter-related issues arise: (i) the unprecedented present scale of genetic erosion threatens to bring an ecosystems collapse, and thus constitutes a threat to all nations; (ii) the animal and plant species in question serve a number of critical and increasingly important industrial, medicinal and other purposes; (iii) the loss of a unique, unstudied organism will involve an irreversible loss to science; and finally (iv) the conservation of biological diversity requires a level of financial resources and scientific and technical know-how that is not easily available to the habitat countries. It is in the light of these considerations that international responsibility in the conservation of biological diversity must be evaluated.

II. INTERNATIONAL RESPONSE

5. The Ad Hoc Working Group of Experts on Biological Diversity, at its second session from 19 to 23 February 1990 in Geneva, concluded that a legal instrument should aim to produce concrete and action-oriented measures for the conservation and sustainable utilization of genetic resources. General agreement was reached on areas which represent basic conservation needs that would lead to implementation and funding measures, even though the magnitude of the cost of a global convention would need to be estimated further through a special study. Furthermore, it was agreed that an international legal instrument without a firm commitment to funding to meet the conservation costs would be unproductive. The Working Group felt that innovative mechanisms should be explored at both national and international levels.

6. The compelling reason for the continuance of the current untenable exploitation of genetic resources is to be found in policy and market failures.

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7. Arguably, economic needs could often lead to the over-use or misuse of resources. The degradation of resources tends to be incremental and cumulative. Sound environmental management requires that the solutions sought should be sufficiently comprehensive and dynamic for them to have a positive impact on the system as a whole. What is sought, in effect, is a series of critical transitions in terms of energy, demographic policy and, above all, natural resource use.

8. These transitions are not likely to be easy to achieve (particularly for developing countries): they will require financial and technology transfers, availability of manpower resources, and overt organizational arrangements, including financial mechanisms. But the alternative, in terms of damage incurred and eventual loss of viability, is such as to make the cost-benefit analysis tilt in favour of early action.

9. The new environmental agenda not only brings the relationship between environment and development more sharply into focus, it is global in scope and requires policy decisions of a new type. The issue of interdependence is coming more and more to the fore, as well as the importance of caring for the global commons and for shared natural resources. Long-term environmental threats, which are often slow to develop, are seen more clearly in comparison with overall development and growth objectives.

10. Genetic resources serve a number of functions in production. Of particular importance are supplies of medicinal and food resources. A large variety of pharmaceutical drugs (annual sales estimated at between \$8-\$20 billion) derive from plant and animal species. One fourth of all prescription drugs are said to contain an active ingredient derived from plants. Many drugs that are now synthesized (e.g. histamines, contraceptives, cortisone, etc.) were originally discovered in wild plants. It is estimated that 70 per cent of all plant species so far known to have anti-cancer properties are tropical plants, and the tropical forests contain literally thousands of species whose potential has not yet been tested. According to the World-Wide Fund for Nature, a plant native to Madagascar, Catharanthus roseus, contains two widely used, powerful anti-cancer drugs of which global sales at the manufacturers' level amount to more than \$150 million per annum. Research continues into the anti-cancer properties of plants, but loss of biological diversity threatens species that might have been used for medication. It is also worth noting that many of the products now cultivated such as cocoa, coffee, tea, rubber, nutmeg etc., were initially collected in the forests and still depend on the wild varieties for cross-breeding. Among key food crops that depend on genetic material from tropical moist forests are wheat and rice, bananas and citrus fruits, worth large sums on the market in yearly sales. Through the use of genetic material they could be improved in terms of yield and variety or made resistant to pests.

11. Not least among the values of genetic resources is the fact that they contain a large reserve of still unknown functions. One day these functions could be found to be of great service to mankind. Apart from the intrinsic and ethical value of the species themselves, the present rate of conversion is destroying an economic option value which mankind cannot afford to neglect from the point of view of the well-being of present and future generations.

12. The economic and social value of biological diversity is consistently underestimated. There are many reasons for this undervaluation, which encourages further conversion and degradation.

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13. One of the principal reasons is that neither public authorities nor consumers and producers are receiving the correct economic signals from the market place. The market prices of the genetic resources and functions do not reflect their real scarcity value or the ecological costs incurred by their use. These signals encourage individuals, industries and Governments to further exploit these resources.

14. The impetus behind these transactions is to be found in market and policy failures. Market failures reflect (i) the fact that some markets are not operating effectively and (ii) that some markets do not exist. In consequence, what happens is that costs that should be internalized are transformed into externalities. Policy failures are reflected in the shape of taxes, concessions, subsidies, price controls and other fiscal measures. They stem from both the application of ill-considered policies with negative impacts and from deliberate support for vested interests. They also stem in large measure from the assignment of proprietary rights in national legal systems, under which terms the biological resources often remain outside the market system and hence are considered free goods.

15. In dealing with the loss of biological diversity, as with other environmental and resource management problems, anticipation and prevention are always more effective and less costly than corrective measures. In the present situation of accelerated destruction, it is imperative that developing countries take early action to reduce the future burden on themselves. It is equally important that the international community take account of the full costs of the loss of the use value, the option value and the existence value of genetic resources and reflect these costs in the transfer of the necessary funds required, as well as in the establishment of appropriate financial mechanisms for the purpose. This is not a once-and-for-all calculation of costs and benefits, but a process of change in which the exploitation of resources, the direction of economic activities, the orientation of technological development and the development of financial mechanisms are all in harmony and enhance both present and future options to meet global needs.

16. It is in this context that the present study attempts to highlight a number of issues that the Working Group might want to consider before deciding on a financial mechanism in terms of the framework legal instrument. None of the views expressed should be attributed to individual Governments or organizations. The views stated are the responsibility of the consultant. In preparing the study, the consultant has been fully aware of the current discussions and developments in respect of financial transfers and funding mechanisms envisaged for the amendments to the Montreal Protocol.

III. NATURE AND SCOPE OF FINANCIAL MECHANISMS

17. It is implicit in the issues discussed that the transfer of financial resources should be adequate, and the financial mechanisms established should be effective and efficient, in order to reduce the current loss of biodiversity. At the same time, it is now clear that there is a serious shortfall in funding for the maintenance of the environment as a whole. The emergence of the new planetary problems, amongst them the depletion of the ozone layer, the emission of greenhouse gases leading to climate change and global warming, the treatment of hazardous wastes, etc. shows that we are far from maintaining the Earth, which we have leased, in full repair.

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18. In view of the urgency of the problems relating to the extinction of species on the one hand, and the complexity and size of financial transfers needed for the planetary problems on the other, it will be worthwhile for the Working Group to concentrate on (i) the need to stem the loss of biological diversity; (ii) considerations of the financial and technological issues that arise in that connection; and (iii) an attempt to reach a broad-based agreement on the financial mechanisms that will enable both developing and developed countries to meet global conservation needs for the maintenance of biological diversity in a timely and satisfactory manner. At a later stage, the financial mechanisms thus identified and initiated could be incorporated into the larger arrangements for the other planetary problems, as and when these arrangements are set up.

19. In this connection, it is useful to begin by identifying the financing needs of the developing countries. These are currently in three parts. First, there are the conventional needs for development assistance. The resources available for this purpose take the form of voluntary contributions. Although these have been an important source of financing for economic and social development in the past, the process today appears to be losing momentum. Not only has the level of Official Development Assistance remained stagnant (actually declining as a percentage of the GNP of donor countries - OECD members - from 0.34 per cent in 1976 to lower levels), there is now a reverse flow for the repayment of debt, which in 1988 amounted to \$43 billion as against total Official Development Assistance of \$56 billion.

20. Second, there is the need for financing to undertake national sustainable development programmes effectively, or to cover what may be called the unmet conservation needs of the developing countries. According to the UNDP and World Resources Institute (WRI), International Conservation Financing Project Report, these needs would amount to roughly \$20 - 50 billion per year for the next decade. The World Watch Institute estimates total additional expenditures rising from \$46 billion in 1990 to \$149 billion in the year 2000.

21. Third, there are the financial requirements to meet the emerging planetary problems. No accurate or even approximate estimates of financial requirements to meet the different scenarios of abatement or containment have emerged so far. The most advanced are estimates of what the developing countries would need to accept the discipline of the Montreal Protocol. These estimates range from \$3 to \$6 billion, spread over the period from 1990 to 2008 (when the 10-year grace period envisaged for developing countries as of the general implementation date of 1988 would expire). The estimates for dealing with the greenhouse gases (leading to climate change and global warming) are rough; figures ranging from \$26 to \$65 billion have been mentioned. The extent of financial transfers within a Framework Legal Instrument on Biodiversity is being worked out on a technical level, which will be subject to political bargaining later.

22. The developing countries consider that any financial transfers undertaken should have the following basic desiderata:

(a) Additionality of the funds in terms of levels, sources and uses (not diverted from current urgent development programmes and projects in pursuit of actions that primarily benefit the global environment);

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(b) Concessionality of assistance in the form of grants, highly concessional loans, which are especially not subject to conditions or leverage on structural adjustments etc.;

(c) A new financing mechanism that is equitable and efficient, and focused on preventing the loss of biological diversity, so as to ensure additional, clearly earmarked financial commitments;

(d) Incremental costs associated with the conservation of biodiversity or dealing with other planetary problems (e.g. ozone layer depletion) should be funded by (i) developed countries and (ii) cover all additional expenditures;

(e) Recognition by recipient countries that the activities supported by the financial transfers are consistent with their own development objectives and not imposed on them from outside;

(f) Finally, the global benefits for which the financial transfers are made and accepted should be assessed on the basis of the best available scientific and technological options.

23. The first two desiderata have received a large measure of agreement, although there is no consensus. On the subject of incremental costs, opinion is divided as to whether all such costs are to be met from international sources or only certain agreed costs. But this is not likely to be a major divisive issue. What is more important is to reach a framework agreement (taking account of the total costs involved) on the sources of financing and types of funding mechanisms which could be put into place quickly.

IV. FUND RAISING

24. With regard to the sources of financing, it should be noted that some Governments are already investing considerable sums in national conservation projects and multilateral/bilateral donor agencies are also taking up such projects and programmes in increasing numbers; but these flows are inadequate for quantitative and qualitative reasons. It is unlikely that the quantity of available resources could be increased in the near future through higher taxation (not an attractive or even politically feasible proposition in most donor countries) or increased lending by multilateral financing institutions raising funds in the capital markets for the purpose. As to quality, by their very nature and long-term gestation periods, programmes to deal with the loss of biological diversity must depend on high levels of concessional funding. In dealing with conservation of biological diversity it is necessary to move away from the prescriptions of capital finance to the principles of public finance.

25. Basically, what is at issue in the effort to stem the extinction of biodiversity is insurance against a possible future risk. That risk is too high to be ignored or minimized. In order to cover the risk, insurance premiums are necessary. Such insurance premiums are normally a percentage of net savings (say between 5 and 10 per cent). Since many of the habitat countries are least developed countries or countries with a net domestic savings level that is inadequate for urgent and pressing development or even survival needs, the question arises as to whether their contributions (insurance premiums) could be met by the international community. There is broad agreement among many economists that when there is a planetary threat

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leading to a damaging impact on the global commons, investment expenditures for containment or conservation strategies (of which the benefits can only be assessed on an international scale) cannot be carried out by commercial loans or with the use of conventional assistance earmarked for economic and social development purposes.

26. The transfer of financial resources for international purposes is one aspect of the matter. The other aspect of the matter is raising the funds internally. It is necessary to pay close attention to users' fees and other charges (e.g. fees for certain uses of biodiversity: the exploitation of germplasm for breeding programmes or the development of new drugs; harvesting in fishery, forestry or of authorized wildlife products; recreational uses in the promotion of and gains from tourism; the recycling and disposal of wastes; etc.) that help to internalize the economic and environmental costs of loss of biodiversity within the operational costs of resource use. Industrial, commercial and trade enterprises that profit from the business in biological diversity could thus be presented with the full incremental costs of their activities. The users' fees would accordingly (i) raise considerable funds for international purposes; (ii) curb excessive use of genetic resources; and (iii) provide a more effective and efficient ecological control mechanism.

V. FUND ADMINISTRATION AND MANAGEMENT

27. The financial mechanisms sought to manage the financial transfers could be a new Fund, or a new facility or a "window" in an existing institution (e.g. the World Bank), or co-operative arrangements, based on comparative advantage, among a number of international organizations (e.g. UNEP, World Bank, FAO, UNDP and others) or a combination of all three. The developing countries have on many occasions expressed strong support for the idea of a Fund established with a financial and technical secretariat under the overall supervision and control of the Parties to a Framework Legal Instrument on Biodiversity and consider it the most appropriate arrangement to reflect global responsibility. Others are of the opinion that financial mechanisms involving existing channels of multilateral and bilateral assistance could be adequate.

28. The establishment of an individual Fund under the control and supervision of the Parties needs further consideration. At the heart of this matter are two issues. First, whether an arrangement of this nature could induce a sense of global interdependence and global responsibility, and could thus redress the free-rider problem, since all countries will be sharing a common burden. Second, whether and to what extent contributions to such a Fund could be supplemented by financial and technical resources coming from existing multilateral/bilateral sources. These issues should be considered in the context of (i) international arrangements currently under consideration for financial and technology transfers in terms of the Montreal Protocol; (ii) the contribution of existing multilateral institutions, such as, FAO, the International Fund for Agricultural Development (IFAD), Consultative Group on International Agricultural Research (CGIAR), the Tropical Forestry Action Plan (TFAP), the International Union for Conservation of Nature and Natural Resources (IUCN), UNDP, World Bank; and (iii) the possibility that the level of contributions from different sources could fall short of the actual needs, so a "safety net" in the form of a residual Fund should be in place.

VI. CONTRIBUTIONS AND DISBURSEMENTS

29. Contributions to such a Fund will be from a multiplicity of sources:

(a) Voluntary contributions, paid by the Parties on an informally agreed assessment basis;

(b) License fees and royalties, arising from intellectual property rights vested in the Fund;

(c) Funds raised by collections and receipts from events organized for the benefit of the Fund;

(d) Funds borrowed by the Fund;

(e) Other resources authorized by the Contracting Parties.

30. Whatever form the financial mechanism may take, there must be a clear understanding of the scale of assessment or burden sharing amongst donors. The scale of assessment could be a percentage of the GNP or could be related to industrial and commercial exploitation of genetic resources or trade in such resources during the past 5 years. It is not strategically important whether the contributions to a Fund or financial mechanisms are voluntary or mandatory, as long as they are assessed.

31. Payments from the Fund will be made for the financial and technical secretariat needed to service the Fund, and to provide certain general support functions, such as the organization of meetings of the Contracting Parties, of the Executive Board and other technical meetings; liaison with international and national research and technical organizations, as deemed necessary; and maintenance of an updated register of all designated areas in which the conservation of biological diversity is to be ensured, etc. More substantively, funds will be made available to meet basic conservation needs. Such needs will comprise, in addition to the co-ordination of conservation management strategies and plans with initiatives for sustainable development and priority conservation projects, (i) technical assistance for research, training, education, awareness building, surveys, etc.; (ii) monitoring and (iii) technology transfer. In view of the urgency of conservation needs, the first category of expenditures (i.e. secretariat costs) should not exceed 25 per cent of the total disbursements.

32. The channelling of funds will be through grants or loans on concessional terms to the Parties or to certain organizations to enable or help them to undertake the conservation of biological diversity. This could be either through Governments or with their concurrence. This may raise certain problems with both donors and habitat countries but, if we draw up a balance, it will seem that the latter alternative has advantages in terms of a sharper focus on conservation needs, savings in administrative costs, and avoidance of time-consuming bureaucratic procedures.

VII. RESIDUAL ISSUES

33. There are also certain unresolved issues relating to the administration and management of the Fund or the financial mechanism put in place. If it is an independent Fund, it will need to be administered by the Parties. The Parties may wish to elect, on the basis of equitable geographic distribution

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and periodic tenure, an Executive Committee or Board to administer the Fund. Grants and loans made from the Fund, on the basis of assessments by the secretariat, will follow decisions made by the Board. In the case of financial mechanisms other than a Fund, these functions would need to be negotiated. Clearly, the countries concerned must participate in the decision-making process if the sense of global interdependence and of shared responsibility that is so essential for the financing of a global approach to the conservation of biological diversity is to be realized.

34. In the case of the Montreal Protocol, the time frame for the transfer of financial resources to developing countries is seen as coming to an end with the completion of the 10-year grace period extended to them (i.e. by 2008). In the case of arrangements for biological diversity, the time frame for providing assistance would appear to depend on the rate of extinction of species reaching an equilibrium level or when the number of participating countries falls below an agreed amount. The Fund or financial mechanisms established will then be terminated and the remaining assets distributed in an equitable manner to those who had made initial contributions.

35. The activities of the Fund or funding mechanisms shall be in pursuance of a Long-Term Action Plan for the conservation of biological diversity and, in that context, shall cover a list of priority conservation projects which may include scientific research; surveys and inventories; elements essential to the identification, establishment, or maintenance of areas in which conservation should be ensured (including actions such as the establishment or maintenance of buffer zones, the reduction of pollution outside the area itself, and compensation to local populations); and the development of or support for sustainable economic activities relating to the use of wild species or of the natural environment which are consistent with the maintenance of biological diversity. Projects may also include the financing, over a period of several years, of operational costs incurred in the conservation of biological diversity, including - but not limited to - costs incurred in the operation of research facilities or programmes, staff training, maintenance of infrastructure and equipment, and education and information activities. (See: Draft Articles prepared by the IUCN for inclusion in a proposed Convention on the Conservation of Biological Diversity and for the Establishment of a Fund for that Purpose, June 1989).

VIII. OPERATIONAL GUIDELINES

36. Two operational guidelines can be drawn up from the brief examination of the nature and functions of the financial mechanisms.

37. First, the financial mechanisms developed must be regarded as a first approximation only. This is because a range of critical issues remain unresolved so far. Basic economic realities are not easily swept away, despite the need to deal with a considerable and increasingly critical concern. One such economic reality is the amount of financial transfers required to induce a certain level of conservation. This is a function of a habitat country's perception of its external debt, economic prospects for the medium- and long-term, and a domestic evaluation of the consequences of a loss of biological diversity. Another economic reality concerns the lack of managerial and enforcement capacities in many developing countries to ensure that unsustainable use of genetic resources is stopped or minimized. In other words, how can the monitoring of the loss of biodiversity be made binding and effective? In the light of the present economic conditions of the habitat

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countries, with a crushing burden of unemployment, falling real income, budgetary constraints and the rigours of structural adjustment, it is unlikely that the terms under which financial transfers are to be used can be fully enforced. Indeed, even when annual or periodic compensation based on inspection is negotiated, the arrangement may grind to a halt much earlier than envisaged.

38. A second guideline that can be drawn up is that inadequate financial transfers and inappropriate financial mechanisms do not help to lighten the burden on the habitat countries to an extent and in a way that will ease the pressure on the unsustainable exploitation of genetic resources. This will require the transcending of the narrow parameters set by negotiations based on zero-sum games. A sense of global interdependence and global solidarity is needed. Concrete solutions must be sought in the intricate and immensely difficult trade-offs between the loss of earnings to be incurred by habitat countries and the need to arrest the accelerated extinction of plant and animal species. This will not be brought about by half-hearted measures that (i) continue to under estimate the totality of the financial commitments required or (ii) attempt to maintain control and dominance over the financial mechanisms established.

IX. CONCLUDING REMARKS

39. An analysis of the nature, scale and timing of the transfer of resources reveals a number of pertinent considerations. These considerations must be kept in mind not only in initiating negotiations for a framework legal instrument, but also in identifying the appropriate level of financial transfers and technical assistance, as well as the nature of the funding mechanisms to be established.

40. First, at present the habitat countries are largely unable to obtain either at a significant level or with any degree of exactitude, the economic and financial benefits that arise from the conservation and management of the Earth's biological resources.

41. Second, the designation of specific land areas for conservation of biological diversity often conflicts with alternative land uses in developing countries (range lands, cultivation of rain-fed crops, pastures, social forestry, human settlements, etc.), sometimes leading to considerable economic loss and political controversy and debate. In this situation, adequate financial transfers could provide a substantial incentive to adopt what could otherwise be politically difficult decisions.

42. Third, the availability of additional, concessional funds could, when coupled with effective project design and development, help to focus attention on biological diversity needs and obtain support for further investment programmes. This will be especially effective if institutional strengthening, the development of the human resources base, and the national capacity for managing conservation strategies in habitat countries are kept in focus.

43. Fourth, financial resources are likely to be forthcoming at adequate levels if the early focus is on action programmes, developed with the help of scientists, conservationists and government officials dealing with specific problems and regions of great concern.

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44. Finally, there is clearly a need for an experimental initial or pilot approach that will bring to the fore what is actually needed to tackle the problems of conservation effectively, through a framework legal instrument, providing more scientific data and information on the scale and rate of extinction of species. Analysing the dose-response relationship of corrective measures, and obtaining a better understanding of the costs and benefits of financial transfers.
